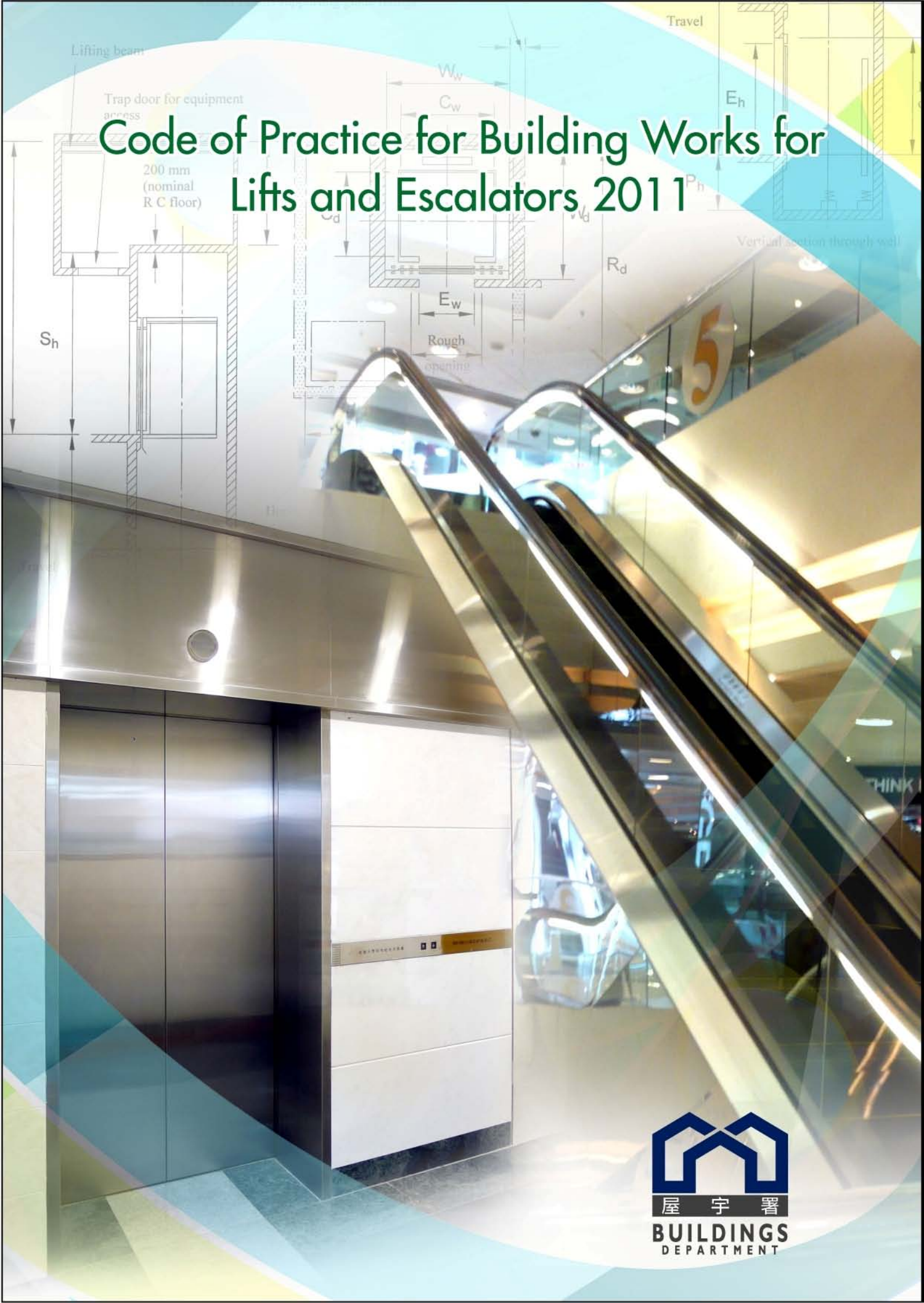


# Code of Practice for Building Works for Lifts and Escalators 2011



**CODE OF PRACTICE**  
**FOR**  
**THE DESIGN AND CONSTRUCTION OF BUILDINGS**  
**AND BUILDING WORKS**  
**FOR**  
**THE INSTALLATION AND SAFE USE OF**  
**LIFTS AND ESCALATORS**

**2011**

**BUILDING AUTHORITY**  
**HONG KONG**

## **FOREWORD**

This Code of Practice sets out the technical standards for building works carried out or to be carried out to accommodate lifts and escalators for the guidance of Authorized Persons, Registered Structural Engineers and other persons responsible for or interested in the design and construction of buildings. It also provides guidance on the notices to be displayed to warn occupants and users of buildings, where lifts and escalators are installed, of the danger that may arise from using, operating and maintaining lifts and escalators.

As a general rule, compliance with the provisions promulgated herein may be deemed to satisfy the requirements of Building (Construction) Regulation 9A. The Building Authority may, however, accept other standards or provisions if he is satisfied that they are capable of equivalent performance.

This revised edition of the Code incorporates various amendments made and promulgated through the relevant Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers since its first publication in 1993.

First issue : July 1993

This revision : November 2011

## CONTENTS

	Page
<b>1. General</b>	<b>1</b>
1.1 Scope	1
1.2 Definitions	1
1.3 Application to service lifts	2
<b>2. Dimensions for lift installations</b>	<b>2</b>
2.1 Minimum dimensions for lift installations	2
2.2 Modifications from the minimum dimensions for lift installations	2
2.3 Machine-room-less lift installations	2
<b>3. Lifts</b>	<b>2</b>
3.1 Liftwell enclosure	2
3.2 Liftwell inspection and emergency doors and inspection traps	2
3.3 Ventilation of a liftwell	5
3.4 Walls, floor and ceiling of a liftwell	5
3.5 Construction of the walls of liftwells facing a car entrance	6
3.6 Protection of any space located below a car or a counterweight	6
3.7 Well containing cars and counterweights belonging to several lifts or service lifts	6
3.8 Lift pit	6
3.9 Exclusive use of a liftwell	7
3.10 Outside of a liftwell	7
3.11 Machine and pulley rooms	8
3.12 Machine and pulley room access	8
3.13 Structural strength and floor surface of machine and pulley rooms	8
3.14 Dimensions of machine and pulley rooms	9
3.15 Doors and trap doors to machine and pulley rooms	9
3.16 Other openings in machine and pulley rooms	10
3.17 Handling of equipment in machine rooms	10
<b>4. Service Lifts</b>	<b>10</b>
4.1 Liftwell enclosure	10
4.2 Liftwell inspection doors and inspection traps	10
4.3 Ventilation of a liftwell	10
4.4 Walls, floor and ceiling of a liftwell	10
4.5 Construction of walls of liftwells facing a car entrance	10
4.6 Protection of any space located below a car or a counterweight	10
4.7 Well containing cars and counterweights belonging to several lifts or service lifts	11
4.8 Lift pit	11
4.9 Exclusive use of a liftwell	11
4.10 Outside of a liftwell	11
4.11 Machine rooms and enclosures	11
<b>5. Escalators</b>	<b>12</b>
5.1 Machine rooms and driving and return stations	12
5.2 Steps and landings	13
5.3 Obstructions	14
Appendix : Sample of general note to be provided on general building plans	15

# **1. GENERAL**

## **1.1 Scope**

This Code of Practice deals with building works related to lifts and escalators in general. Standards on fire resisting construction for all building works including building works to accommodate lifts and escalators are specified in Part C of the Code of Practice for Fire Safety in Buildings. Electrical and mechanical standards are specified in the Code of Practice on the Design and Construction of Lifts and Escalators and the Code of Practice for Lift Works and Escalator Works issued under the Lifts and Escalators (Safety) Ordinance. For firemen's lifts, some requirements of regulation 41B of the Building (Planning) Regulations and the standards specified in Part D of the Code of Practice for Fire Safety in Buildings may also be applicable.

## **1.2 Definitions**

1.2.1 "Escalator", "lift" and "service lift" have the same meaning as assigned to them respectively in the Lifts and Escalators Ordinance, Cap. 327. "Open air" has the same meaning as assigned to it in regulation 2(1) of the Building (Planning) Regulations.

1.2.2 For ease of reference, the above definitions are reproduced below.

"Escalator" means –

- (a) an inclined, continuous stairway which is driven by mechanical power and used for raising or lowering passengers; and
- (b) a passenger conveyor that is a continuous walkway which is driven by mechanical power and used for the conveyance of passengers on the same or between different traffic levels;

"Lift" means –

- (a) a lifting machine or appliance having a car or platform the direction of movement of which is restricted by a guide or guides; or
- (b) a mechanized vehicle parking system,

but does not include an escalator;

"Service lift" means a lift having a rated load of not more than 250 kg and a car in which the area of the floor is not more than 1 m<sup>2</sup> and the height of which is not more than 1.2m;

"Open air" means a space which –

- (a) is vertically uncovered and unobstructed;
- (b) is not less, in any horizontal dimension, than 1.5m; and
- (c) where such space is enclosed on 4 sides, has a horizontal area of not less than 1 m<sup>2</sup> for every 6 m of the mean height of the walls enclosing the space.

### **1.3 Application to service lifts**

The standards specified in paragraphs 2 and 3 shall be adopted for all lifts to which Building (Construction) Regulation 9A applies, except service lifts. The standards for service lifts are laid down in paragraph 4.

## **2. DIMENSIONS FOR LIFT INSTALLATIONS**

### **2.1 Minimum dimensions for lift installations**

The minimum dimensions of “well”, “entrance”, “pit”, “machine room” and “headroom” are given in Table 1.

### **2.2 Modifications from the minimum dimensions for lift installations**

If there are justifications to deviate from, or practical difficulties to comply with, the minimum dimensions given in Table 1, then the requirements may be modified provided that a registered lift engineer or a person authorized by a registered lift contractor confirms in writing that –

- (i) the installations can be accommodated in the proposed lift wells and machine rooms;
- (ii) any future maintenance, repair, major alteration, replacement, examination and testing of the lifts can be carried out in the proposed liftwells and machine rooms safely and without difficulty; and
- (iii) the lift installations are in full compliance with the Code of Practice on the Design and Construction of Lifts and Escalators issued under the Lifts and Escalators (Safety) Ordinance.

### **2.3 Machine-room-less lift installations**

The requirements on “machine room minimum dimensions” and “overall headroom” are not applicable to machine-room-less lift installations if the concerned lift models are approved by the Director of Electrical and Mechanical Services. Particulars of the lift models used and relevant approval shall be indicated on the general building plans.

## **3. LIFTS**

### **3.1 Liftwell enclosure**

Each well shall be totally enclosed by imperforate walls, floor and ceiling, as defined in paragraph 3.4 and in accordance with Part C of the Code of Practice for Fire Safety in Buildings.

### **3.2 Liftwell inspection and emergency doors and inspection traps**

3.2.1 Inspection and emergency doors, and inspection traps to a well, shall not be permitted except on grounds of safety to users or the requirements of servicing.

3.2.2 Inspection doors shall have a minimum height of 1.4 m and a minimum width of 600 mm.

**Table 1 Minimum dimensions for lift installations**

Rated load	No. of Passengers	Rated speed	Car internal sizes				Well min. dimensions		Clear entrance		Pit depth	Headroom	Machine room minimum dimensions (see Note 5)				Overall headroom			
			Width Cw	Depth Cd	Max. Area Ca	Height	Width Ww	Depth Wd	Width Ew	Height Eh			Ph	Sh	Area Ra	Width Rw		Depth Rd	Height Rh	Uh
630	8	1.0	1 100	1 400	1.66	2 300	1 800	2 100	800	2 100	1 700	4 450	15	2 500	3 700	2 600	7 250			
		1.5	1 100	1 400	1.66	2 300	1 800	2 100	800	2 100	1 700	4 650	15	2 500	3 700	2 600	7 450			
		1.75	1 100	1 400	1.66	2 300	1 800	2 100	800	2 100	1 800	4 850	15	2 500	3 700	2 600	7 650			
680	9	1.0	1 400	1 250	1.75	2 300	1 800	2 100	800	2 100	1 700	4 450	15	2 500	3 700	2 600	7 250			
		1.5	1 400	1 250	1.75	2 300	1 800	2 100	800	2 100	1 700	4 650	15	2 500	3 700	2 600	7 450			
		1.75	1 400	1 250	1.75	2 300	1 800	2 100	800	2 100	1 800	4 850	15	2 500	3 700	2 600	7 650			
*800	10	1.0	1 400	1 350	2.0	2 300	1 900	2 300	800	2 100	1 700	4 450	15	2 500	3 700	2 600	7 250			
		1.5	1 400	1 350	2.0	2 300	1 900	2 300	800	2 100	1 700	4 650	15	2 500	3 700	2 600	7 450			
		1.75	1 400	1 350	2.0	2 300	1 900	2 300	800	2 100	1 800	4 850	15	2 500	3 700	2 600	7 650			
		2.0	1 400	1 350	2.0	2 300	1 900	2 300	800	2 100	2 800	5 650	15	3 200	4 900	2 600	8 450			
		2.5	1 400	1 350	2.0	2 300	1 900	2 300	800	2 100	2 800	5 650	15	3 200	4 900	2 600	8 450			
900	12	1.0	1 600	1 350	2.2	2 300	2 100	2 100	900	2 100	1 700	4 450	15	2 500	3 700	2 600	7 250			
		1.5	1 600	1 350	2.2	2 300	2 100	2 100	900	2 100	1 700	4 650	15	2 500	3 700	2 600	7 450			
		1.75	1 600	1 350	2.2	2 300	2 100	2 100	900	2 100	1 800	4 850	15	2 500	3 700	2 600	7 650			
		2.0	1 600	1 350	2.2	2 300	2 100	2 100	900	2 100	2 800	5 650	15	3 200	4 900	2 600	8 450			
		2.5	1 600	1 350	2.2	2 300	2 100	2 100	900	2 100	2 800	5 650	15	3 200	4 900	2 600	8 450			
1 000	13	1.0	1 600	1 400	2.4	2 300	2 400	2 300	1 100	2 100	1 800	4 300	20	3 200	4 900	2 700	7 200			
		1.5	1 600	1 400	2.4	2 300	2 400	2 300	1 100	2 100	1 800	4 300	20	3 200	4 900	2 700	7 200			
		1.6	1 600	1 400	2.4	2 300	2 400	2 300	1 100	2 100	1 800	4 300	20	3 200	4 900	2 700	7 200			
		1.75	1 600	1 400	2.4	2 300	2 400	2 300	1 100	2 100	1 800	4 850	20	3 200	4 900	2 700	7 750			
		1.8	1 600	1 400	2.4	2 300	2 400	2 300	1 100	2 100	1 800	4 850	20	3 200	4 900	2 700	7 750			
		2.0	1 600	1 400	2.4	2 300	2 400	2 300	1 100	2 100	2 800	6 000	20	3 200	4 900	3 050	9 400			
		2.5	1 600	1 400	2.4	2 300	2 400	2 300	1 100	2 100	2 800	6 000	20	3 200	4 900	3 050	9 400			
3.5	1 600	1 400	2.4	2 300	2 400	2 300	1 100	2 100	3 650	6 300	20	3 200	4 900	3 250	10 400					
1 250	16	1.0	1 950	1 400	2.9	2 300	2 600	2 300	1 100	2 100	1 900	4 400	22	3 200	4 900	2 700	7 250			
		1.5	1 950	1 400	2.9	2 300	2 600	2 300	1 100	2 100	1 900	4 400	22	3 200	4 900	2 700	7 250			
		1.6	1 950	1 400	2.9	2 300	2 600	2 300	1 100	2 100	1 900	4 400	22	3 200	4 900	2 700	7 250			
		1.75	1 950	1 400	2.9	2 300	2 600	2 300	1 100	2 100	1 900	4 850	22	3 200	4 900	2 800	7 850			
		1.8	1 950	1 400	2.9	2 300	2 600	2 300	1 100	2 100	1 900	4 850	22	3 200	4 900	2 800	7 850			
		2.0	1 950	1 400	2.9	2 300	2 600	2 300	1 100	2 100	2 800	6 150	22	3 200	4 900	3 150	9 500			
		2.5	1 950	1 400	2.9	2 300	2 600	2 300	1 100	2 100	2 800	6 150	22	3 200	4 900	3 150	9 500			
3.5	1 950	1 400	2.9	2 300	2 600	2 300	1 100	2 100	3 650	6 300	22	3 200	4 900	3 350	10 400					
1 350	18	1.0	2 000	1 500	3.1	2 300	2 600	2 300	1 100	2 100	1 900	4 800	22	3 200	4 900	2 800	7 800			
		1.5	2 000	1 500	3.1	2 300	2 600	2 300	1 100	2 100	1 900	4 800	22	3 200	4 900	2 800	7 800			
		1.75	2 000	1 500	3.1	2 300	2 600	2 300	1 100	2 100	1 900	4 850	22	3 200	4 900	2 800	7 850			
		2.0	2 000	1 500	3.1	2 300	2 600	2 300	1 100	2 100	2 800	6 150	22	3 200	4 900	3 150	9 500			
		2.5	2 000	1 500	3.1	2 300	2 600	2 300	1 100	2 100	2 800	6 150	22	3 200	4 900	3 150	9 500			
3.5	2 000	1 500	3.1	2 300	2 600	2 300	1 100	2 100	3 650	6 300	22	3 200	4 900	3 400	10 400					
1 600	21	1.0	2 000	1 750	3.56	2 300	2 600	2 600	1 100	2 100	1 900	4 800	25	3 200	5 500	2 800	7 800			
		1.5	2 000	1 750	3.56	2 300	2 600	2 600	1 100	2 100	1 900	4 800	25	3 200	5 500	2 800	7 800			
		1.75	2 000	1 750	3.56	2 300	2 600	2 600	1 100	2 100	1 900	4 850	25	3 200	5 500	2 800	7 850			
		2.0	2 000	1 750	3.56	2 300	2 600	2 600	1 100	2 100	2 800	6 150	25	3 200	5 500	3 350	9 700			
		2.5	2 000	1 750	3.56	2 300	2 600	2 600	1 100	2 100	2 800	6 150	25	3 200	5 500	3 350	9 700			
3.5	2 000	1 750	3.56	2 300	2 600	2 600	1 100	2 100	3 650	6 300	25	3 200	5 500	3 650	10 600					

**Notes on Table 1**

- Refer to Figure 1 for annotations on the dimensions used in this table.
- The dimensions specified in this table are also applicable to rated speeds lower or higher than those stated (i.e. lower than 1.0 m/s for all rated loads; higher than 1.75 m/s for 630 kg, 3.5 m/s for 1,600 kg, etc. ). For intermediate loads and rated speeds, the dimensions are determined by linear interpolation from relevant dimensions in Table 1.
- Dimensions Cw and Cd may vary provided that the product of Cw and Cd does not exceed the area given in Ca
- \*4. For the rated load of 750kg, Ca (max.) = 1.9m<sup>2</sup>
- For the design of machine rooms, select dimensions for Rw and Rd:-
  - which are equal to or greater than those specified, and
  - whose product results in an area which is equal to or greater than that specified for Ra.
- For lifts having a rated load beyond 1 600 kg:-
  - the car internal area Ca shall be increased by adding a maximum of 0.16m<sup>2</sup> for each extra 100 kg rated load;
  - the machine room area Ra shall be increased by adding 0.6m<sup>2</sup> for each extra 100 kg rated load; and
  - the value of the other dimensions shall not be less than that for a lift of 1 600 kg rated load and having the same rated speed.
- As regards "machine room minimum dimensions", the provision of sufficient machine room clearances is accepted as an alternative approach to comply with the relevant requirements. If this alternative approach is to be adopted, a general note (sample at Appendix) should be provided on the general building plans. The details should then be verified on site upon completion of works.

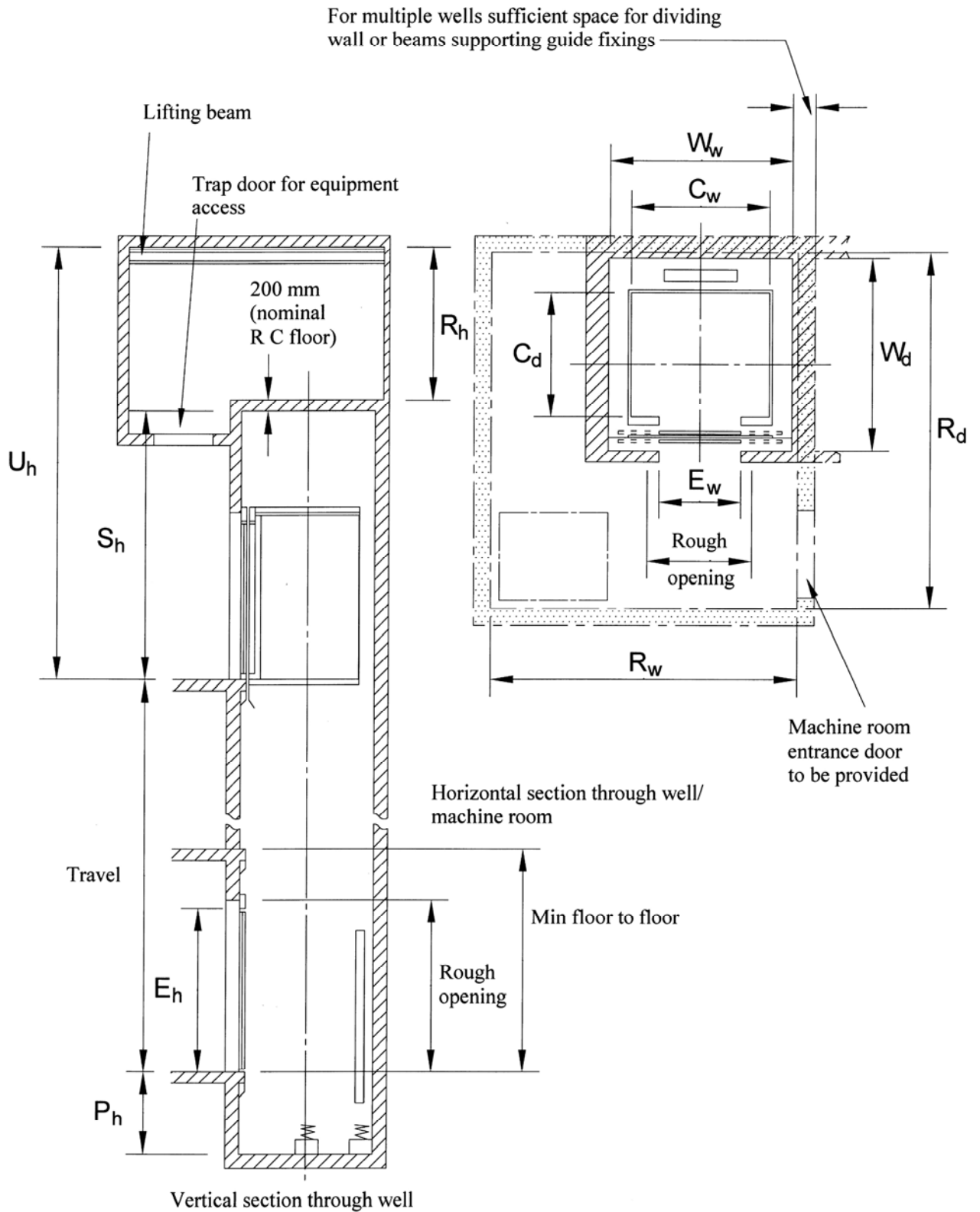


Figure 1. Typical sections through well and machine room

- 3.2.3 Emergency doors shall have a minimum height of 1.8 m and a minimum width of 500 mm. In addition the emergency doors shall –
- (a) be located in a position readily accessible to rescuers; and
  - (c) bear on its outside face a notice in English and Chinese in letters and characters not less than 25 mm high as follows –

DANGER  
UNAUTHORIZED ACCESS PROHIBITED  
LIFTWELL RESCUE DOOR  
CLOSE AND LOCK THIS DOOR  
危險  
不得擅進  
升降機槽救生門  
請關閉並緊鎖此門

- 3.2.4 Inspection traps shall have a maximum height of 500 mm and a maximum width of 500 mm.
- 3.2.5 When the distance between consecutive landing doorsills exceeds 11 m, intermediate emergency doors shall be provided, such that the distance between sills is not more than 11 m.
- 3.2.6 Inspection and emergency doors and inspection traps shall be imperforate and shall not open towards the interior of the well.
- 3.2.7 Inspection doors, emergency doors and inspection traps shall be provided with a key-operated lock, capable of being reclosed and relocked without a key.
- 3.2.8 Inspection and emergency doors shall be capable of being opened from inside the well without a key even when locked.

### **3.3 Ventilation of a liftwell**

- 3.3.1 A well shall be suitably ventilated. It shall not be used to provide ventilation of rooms other than those for the service of lifts.
- 3.3.2 Openings shall be made at the top of a well, with a minimum area of 1% of the area of the horizontal cross section of the well, ventilating to the open air either directly or via ducting or the machine or pulley room, provided that in no case the ventilation openings shall be less than 0.15 m<sup>2</sup> net free area.

### **3.4 Walls, floor and ceiling of a liftwell**

- 3.4.1 The structure of a well shall be able to support at least the loads which may be applied by the machine, by the guides at the moment of safety gear operation, or in the case of off-centering of the load in a car, by the action of buffers, or those which may be applied by an anti-rebound device.
- 3.4.2 In the case of hydraulic lifts the structure of a well shall be able to support at least the loads which may be applied –
- (a) by the machine, the jacks and guides;

- (b) by the buffers, any safety gear, clamping device or pawl device, at the moment of application; and
- (c) due to off-centering of loads in the car.

3.4.3 The walls, floor and ceiling of a well shall be constructed of non-combustible and durable materials which do not assist the creation of dust and shall have sufficient structural strength.

3.4.4 The inner surface of all walls shall form a continuous vertical surface composed of smooth and hard elements unless such surface is inaccessible from the top of a car or from the top of the car via its adjacent installation such as a counterweight and structural supports.

### **3.5 Construction of the walls of liftwells facing a car entrance**

Notwithstanding paragraph 3.4.4, below each landing sill over a vertical distance of 350 mm, the wall of a well facing a car entrance shall be so constructed that –

- (a) the inner surface of such wall shall form a continuous vertical surface composed of smooth and hard elements. This smooth surface shall extend at least 25 mm on both sides beyond the full car entrance width. Plaster faced and glass walls are forbidden, and
- (b) where it is not practicable to provide a continuous smooth surface, any projection in excess of 5 mm shall either be connected to the lintel of the door opening below, or be extended downward and splayed, on its underside, to an angle of not less than 75° from the horizontal plane for a distance of not less than 20 mm, by means of metal plates, concrete or other similar material.

### **3.6 Protection of any space located below a car or a counterweight**

3.6.1 Liftwells shall preferably not be situated above a space accessible to persons.

3.6.2 If an accessible space exists beneath a car or a counterweight, the base of the pit shall be designed for an imposed load of at least 5 kPa, and –

- (a) either there shall be installed below the counterweight buffer a solid pier extending down to solid ground, or
- (b) the counterweight shall be equipped with safety gear.

### **3.7 Well containing cars and counterweights belonging to several lifts or service lifts**

3.7.1 In the lower part of a well there shall be a partition between the moving parts (car or counterweight) of different lifts or service lifts. This partition shall extend at least from the floor of the lift pit to a height of 2.5 m above the floor of the pit, and across the whole depth of the well.

3.7.2 If the horizontal distance between the edge of a car roof and a moving part (car or counterweight) of an adjacent lift or service lift is less than 300 mm, the partition required in paragraph 3.7.1 shall be extended through the full height of the well.

### **3.8 Lift pit**

3.8.1 The lower part of a well shall consist of a pit, the bottom of which shall be smooth and approximately level, except for any bases for buffers, guides and jacks and for water drainage

devices. After the building-in of guide fixings, buffers, any grids, etc., the pit shall be impervious to infiltration of water.

3.8.2 An access door shall be provided to the pit if the pit depth exceeds 1.6 m and if the layout of the building so permits.

3.8.3 Where an access door is provided it shall –

(a) have a minimum height of 1.4 m and a minimum width of 600 mm;

(b) bear on its outside face a notice in English and Chinese in letters and characters not less than 25 mm high as follows –

DANGER  
UNAUTHORIZED ACCESS PROHIBITED  
LIFTWELL  
CLOSE AND LOCK THIS DOOR  
危險  
不得擅進  
升降機槽  
請關閉並緊鎖此門

3.8.4 If there is no other access a permanent means of access with suitable hand holds at an appropriate height above the sill shall be provided inside the well, easily accessible from the landing door, to permit maintenance personnel to descend safely to the floor of the pit. Such means of access shall not project into the clear running space of any lift equipment. The position of at least one hand hold in the lift well should be approximately 1.3 m above the sill and not more than 0.9 m from the landing entrance opening.

### **3.9 Exclusive use of a liftwell**

A well shall be exclusively for a lift. It shall not contain cables or devices, etc., other than for the lift nor shall it be fitted with fire sprinklers.

### **3.10 Outside of a liftwell**

3.10.1 Every landing entrance shall incorporate a sill of sufficient strength to withstand the passage of loads being introduced into a car.

3.10.2 A slight counter slope shall be provided in front of each landing sill to avoid water from washing, sprinkling, draining or entering into a well.

3.10.3 On the outside of a well at each landing level, as near as practical to the landing door or, where there are two or more adjoining lifts, the landing door of one in every two lifts, there shall be displayed a notice in English and Chinese in letters and characters not less than 15 mm high as follows –

IN CASE OF FIRE  
DO NOT USE THE LIFT  
如遇火警切勿使用升降機

### **3.11 Machine and pulley rooms**

3.11.1 The machine and its associated equipment shall be in a special room, comprising solid walls, ceiling and door and/or trap. Provision of machine room is not required for machine-room-less lift installations if the concerned lift models are approved by the Director of Electrical and Mechanical Services. Apart from indicating particulars of the lift models used and relevant approval in the general building plans, a clear and safe access shall be provided to the control panels/cabinets for machine-room-less lift installations. Such access shall be from common areas without necessitating entry into private premises.

3.11.2 Machine or pulley rooms shall be used only for accommodating the equipment necessary for the operation of a lift. Provision of the following is, however, permitted –

- (a) machines for service lifts and escalators;
- (b) equipment for air-conditioning or ventilating these rooms; and
- (c) fire service installations and equipment as may be required by the Director of Fire Services for these rooms.

Fire sprinklers, however, shall not normally be fitted in these rooms.

3.11.3 Machine rooms shall preferably be placed above a well.

### **3.12 Machine and pulley room access**

3.12.1 Access to machine and pulley rooms shall be from common areas without necessitating entry into private premises. A clear and safe access shall be maintained at all times and in all circumstances. The access ways to the machine rooms and the entrances themselves shall be at least 2 m high provided that door sills and edges with a height not exceeding 400 mm are permitted.

3.12.2 Access for persons to machine or pulley rooms shall be effected entirely by way of stairs if the difference in levels so requires. If it is impractical to install stairs, then ladders may be used provided that the following conditions are satisfied –

- (a) the ladder shall be permanently fixed;
- (b) if greater than 2 m in height the ladder shall be fitted with safety hoops or other suitable fall arrest system; and
- (c) adjacent to the top end of the ladder, there shall be a platform with railings and one or more hand holds within easy reach.

3.12.3 Means of access shall be provided for hoisting of heavy equipment during erection and, if need be, its replacement, so that this can be done safely, especially avoiding handling on stairs.

### **3.13 Structural strength and floor surface of machine and pulley rooms**

3.13.1 Machine and pulley rooms shall be so constructed to withstand the loads and forces to which they will normally be subjected. They shall be of durable material not favouring the creation of dust.

3.13.2 Room floors shall be of non-slip material.

### **3.14 Dimensions of machine and pulley rooms**

- 3.14.1 The dimensions of machine rooms shall be sufficient to permit easy and safe access for maintenance personnel to all components, especially the electrical equipment in the machine rooms.
- 3.14.2 In no case shall the clear height of machine rooms for movement or working be less than 2.1 m. This full height for movement or working shall be taken to the underside of the structural roof beams and measured from –
- (a) the floor of the access area;
  - (b) the floor of the working area.
- 3.14.3 The height under the roof of pulley rooms shall be at least 1.5 m.
- 3.14.4 When the machine room floor comprises a number of levels, differing by more than 500 mm, stairways or steps and guard rails shall be provided.
- 3.14.5 When the floor of the machine room has any recesses more than 500 mm deep and less than 500 mm wide, or any channels, they shall be covered with steel chequer plate of 4 mm thick or other equivalent materials having adequate strength to support the weight of maintenance personnel.

### **3.15 Doors and trap doors to machine and pulley rooms**

- 3.15.1 Access doors shall have a minimum width of 600 mm and a minimum height of 1.8 m for machine rooms, and 1.4 m for pulley rooms. They shall not open towards the inside of the room.
- 3.15.2 Access trap doors for persons shall give a clear passage of at least 800 mm x 800 mm, and shall be counter-balanced. All trap doors, when they are closed, shall be able to support two persons, i.e. able to resist a vertical force of 2 000 N at any position, without permanent deformation. Trap doors shall not open downwards. Hinges, if any, shall be of a type which cannot be unhooked.
- 3.15.3 Doors or trap doors shall –
- (a) be fitted with locks having keys which can be opened without a key from inside the room; and
  - (b) bear on the outside face a notice in English and Chinese in letters and characters not less than 25 mm high as follows –

DANGER  
UNAUTHORIZED ACCESS PROHIBITED  
MACHINE ROOM  
CLOSE AND LOCK THIS DOOR  
危險  
不得擅進  
機房  
請關閉並緊鎖此門

3.15.4 Trap doors used only for access of material shall be locked from the inside only.

### **3.16 Other openings in machine and pulley rooms**

3.16.1 The dimensions of holes in the slab and room floor shall be reduced to a minimum.

3.16.2 To prevent objects from falling through openings situated above a well, including those for electric cables, ferrules which project at least 50 mm above a slab or a finished floor shall be used.

### **3.17 Handling of equipment in machine rooms**

One or more metal supports or hooks with safe working load notice, as appropriate, shall be provided in a machine room ceiling or on beams, conveniently positioned to permit hoisting of heavy equipment during erection and, if need be, its replacement.

## **4. SERVICE LIFTS**

### **4.1 Liftwell enclosure**

Each well shall be totally enclosed by imperforate walls, floor and ceiling, as defined in paragraph 4.4 and in accordance with Part C of the Code of Practice for Fire Safety in Buildings.

### **4.2 Liftwell inspection doors and inspection traps**

4.2.1 Inspection doors and inspection traps to a well shall not be permitted except for the purpose of servicing.

4.2.2 Inspection doors and inspection traps shall comply with paragraphs 3.2.2., 3.2.4., 3.2.6., 3.2.7., and 3.2.8.

### **4.3 Ventilation of a liftwell**

Where a well is ventilated it shall not be used to provide ventilation of rooms other than a machine or pulley room.

### **4.4 Walls, floor and ceiling of a liftwell**

4.4.1 The structure of a well shall be capable of supporting at least the loads which may be applied by the machine, by the guides at the moment of safety gear operation and by buffer operation.

4.4.2 The walls, floor and ceiling of a well shall be constructed of non-combustible and durable materials which do not assist the creation of dust and shall have sufficient structural strength.

**4.5 Construction of walls of liftwells facing a car entrance** shall comply with paragraph 3.5.

### **4.6 Protection of any space located below a car or a counterweight**

4.6.1 Liftwells shall preferably not be situated above a space accessible to persons.

4.6.2 Where an accessible space exists beneath a well, safety gear shall be fitted to the car and/or counterweight in accordance with the Code of Practice on the Design and Construction of Lifts and Escalators issued under the Lifts and Escalators (Safety) Ordinance. The bottom of the well shall be of sufficient strength to accommodate the vertical forces of safety gear

operation and buffer loads.

**4.7 Well containing cars and counterweights belonging to several lifts or service lifts** shall comply with paragraph 3.7.

**4.8 Lift pit**

4.8.1 A lift pit is not required except in the case of a service lift where the lowest serving level is at or near floor level.

4.8.2 When a lift pit is provided, the bottom of the pit shall be smooth and approximately level and the pit shall be adequately drained. If the pit depth exceeds 1 m, a permanent means of access with suitable hand holds at an appropriate height above the sill shall be provided inside the well, easily accessible from the landing door, to permit maintenance personnel to descend safely to the floor of the pit. Such means of access shall not project into the clear running space of any lift equipment.

**4.9 Exclusive use of a liftwell** shall comply with paragraph 3.9.

**4.10 Outside of a liftwell**

4.10.1 Every landing entrance shall incorporate a sill of sufficient strength to withstand the passage of loads being introduced into a car.

4.10.2 On the outside of a well as near as practical to every landing door, there shall be displayed a notice in English and Chinese in letters and characters not less than 25 mm high as follows –

SERVICE LIFT  
PERSONS ARE FORBIDDEN  
TO ENTER THE LIFT CAR  
OR ENCLOSURE  
貨物專用升降機  
禁止內進

**4.11 Machine rooms and enclosures**

4.11.1 The machine and its ancillary equipment shall be accommodated in an enclosure within a liftwell, or in a separate machine room.

4.11.2 For service lifts of a rated load of 150 kg and above, the machinery space floor area shall not be less than 1.5 m x 1.5 m and the clear height shall not be less than 1.2 m. For service lifts of a rated load below 150 kg, the machinery space depth shall not exceed 600 mm and the clear height shall not be less than 800 mm.

4.11.3 The machinery space shall be soundly constructed, weather-proof and dry. It shall be safe for access by maintenance personnel to all equipment.

4.11.4 For service lifts of a rated load of 150 kg and above, the floor of the machinery space shall be of adequate strength at every point to withstand the load of maintenance personnel and equipment.

4.11.5 For service lifts of a rated load below 150 kg, either the requirements in paragraph 4.11.4 or those listed below shall be followed –

- (a) the maintenance personnel shall be able to reach every part of the equipment inside the machinery space with his hands while standing outside the space, and
- (b) rigid partition or wire mesh shall be provided to prevent any object from falling down into the liftwell from the machinery space.

4.11.6 Machinery space shall be accessible for maintenance and inspection purposes. Such access shall comply with paragraph 3.12.2.

4.11.7 An access door to a machinery space shall –

- (a) for service lifts of a rated load below 150 kg, be not less than 800 mm in height and have a width of 900 mm or the full width of the machinery space, whichever is the less;
- (b) for service lifts of a rated load of 150 kg and above, be not less than 1.0 m in height and have a width of not less than 1.2 m;
- (c) be facing the machine and its ancillary equipment to allow installation and maintenance work;
- (d) be lockable; and
- (e) bear on its outside face a notice in English and Chinese in letters and characters not less than 25 mm high as follows –

DANGER  
UNAUTHORIZED ACCESS PROHIBITED  
MACHINE ROOM  
CLOSE AND LOCK THIS DOOR  
危險  
不得擅進  
機房  
請關閉並緊鎖此門

4.11.8 The machinery space shall not be used for purposes other than for the lift. It shall not contain ducts, cables or devices other than those for the lift.

## **5. ESCALATORS**

### **5.1 Machine rooms and driving and return stations**

5.1.1 Where separate machinery space, and/or separate driving and return stations are provided, the machines and associated equipment shall be in a special room, comprising solid walls, ceilings and door and/or traps.

5.1.2 Separate machine rooms and separate driving and return stations shall be used only for accommodating the equipment necessary for the operation of the escalator. Provision of the following is, however, permitted –

- (a) machines for lifts or service lifts;
- (b) equipment for air-conditioning or ventilating these rooms; and

- (c) fire service installations and equipment as may be required by the Director of Fire Services for these rooms.

Fire sprinklers, however, shall not normally be fitted in these rooms.

- 5.1.3 Separate machine rooms and separate driving and return stations shall be of sufficient size to permit easy and safe access for maintenance personnel to all the components, especially the electrical equipment. In no case shall the clear height of such rooms and stations be less than 2.1 m.
- 5.1.4 Access for persons to separate machine rooms and separate driving and return stations shall be effected entirely by way of stairs if the difference in levels so requires. If it is impractical to install stairs, then ladders may be used provided that the following conditions are satisfied –
  - (a) the ladder shall be permanently fixed;
  - (b) if greater than 2 m in height, the ladder shall be fitted with safety hoops or other suitable fall arrest system; and
  - (c) adjacent to the top end of the ladder, there shall be a platform with railings and one or more hand holds within easy reach.
- 5.1.5 Access doors or inspection traps to separate machine rooms or separate driving and return stations shall bear on their outside face a notice in Chinese and English in letters and characters not less than 25 mm as follows –

DANGER  
UNAUTHORIZED ACCESS PROHIBITED  
MACHINE ROOM  
CLOSE AND LOCK THIS DOOR  
危險  
不得擅進  
機房  
請關閉並緊鎖此門

## 5.2 Steps and Landings

- 5.2.1 An unrestricted area shall be provided at each landing of an escalator to accommodate passengers. Such unrestricted area shall have –
  - (a) a width of not less than the distance between the handrail centrelines of the escalator; and
  - (b) a depth, measured from the end of the balustrade, of not less than 2.5 m, or not less than 2 m if the width of the unrestricted area is increased to at least double the distance between the handrail centrelines.
- 5.2.2 A clear height of not less than 2.3 m shall be provided above –
  - (a) the steps of an escalator at all points; and
  - (b) any unrestricted area provided in accordance with paragraph 5.2.1.

### **5.3 Obstructions**

- 5.3.1 Where any part of a building obstructs or may obstruct passengers riding on escalators, for example, at floor intersections or on criss-cross escalators, protection against injury to persons such as obstruction guards shall be provided in accordance with the Code of Practice on the Design and Construction of Lifts and Escalators issued under the Lifts and Escalators (Safety) Ordinance.
- 5.3.2 The horizontal distance between the outer edge of a handrail of an escalator and any wall or any part of a building likely to cause an obstruction shall under no circumstances be less than 80 mm.

## **Sample of General Note to be provided on general building plans**

### **Lift Machine Room Clearances**

(Refer to Note 7 on Table 1)

For the lifts (Nos. xxxxxxxx) to be installed, the following machine room clearances will be provided in accordance with the Code of Practice for Building Works for Lifts and Escalators

- a. a clear horizontal area in front of the panels / cabinets with depth not less than 0.7m and width not less than 0.5m and the full width of the cabinet / panel.
- b. a clear horizontal area of at least 0.5m x 0.6m for servicing and inspection of moving parts and manual emergency operation where necessary.
- c. access ways to these clear spaces, with a width not less than 0.5m or, in areas where there are no moving parts, 0.4m.